AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) ~~Method~~ A method for detecting an information signal, a tone ~~and/or~~ of a specified frequency, or a phase change of ~~a tone in one or more signals which contain *inter alia* this~~ the tone in a signal which contains the information signal or the tone ~~this tone, characterised in that each~~ the method comprising:

dividing the signal ~~is divided~~ into a plurality of blocks corresponding to time segments ~~(blocks), in that only a selection~~ of the signal, wherein the blocks have an adjustable length which is set to ensure accurate detection of the information signal, the tone or the phase change;

selecting a predetermined number of the blocks ~~are further processed~~ to be processed for detection, ~~whereas~~ wherein the blocks which are not selected are not further processed, ~~the signal in the blocks being made available for further processing in the form of sample values of a signal in the time domain, in that the blocks are subjected to transformation, for example transformation;~~

transforming sample values of the signal in selected blocks from the time domain to the frequency domain, to produce at least one output value, ~~and in that a decision in relation to the detection is made with the aid of the;~~ and

detecting the information signal, the tone or the phase change based on said at

least one output value ~~of the transformation~~.

2. (Currently Amended) ~~Method~~ The method in particular according to

claim 1, ~~characterised in that the~~ wherein said detecting comprises mapping a plurality of

output values ~~of the transformation of a plurality of~~ for the selected blocks ~~are mapped by~~

~~a function or mapping in at least one result, and in that the result is used to produce~~ , and

generating a decision value based on a result of said mapping.

3. (Currently Amended) ~~Method~~ The method according to claim 2,

~~characterised in that~~ wherein the mapping comprises a summation ~~which is complex if~~

~~desired~~ of the output values.

4. (Currently Amended) ~~Method~~ The method according to claim 2, c

~~characterised in that~~ wherein the mapping ~~represents~~ comprises a product ~~formation~~

~~which is complex if desired~~ of the output values.

5. (Currently Amended) ~~Method~~ The method according to claim 1,

~~characterised in that~~ the ~~transformation~~ transforming is frequency-selective and ~~has been~~

~~or~~ is adjusted to the frequency of the tone currently to be detected.

6.   (Currently Amended) ~~Method~~ The method according to claim 1,

~~characterised in that~~ the transforming comprises applying a Fourier transform ~~is used~~ to

the sample values of the selected blocks.

7.   (Currently Amended) ~~Method~~ The method according to claim 1,

~~characterised in that~~ the transforming comprises multiplying the sample values of

selected blocks by a window function and then applying a Fourier transform ~~is used after~~

~~multiplication of the time signal by a window~~ to the sample values multiplied by the

window function.

8.   (Currently Amended) ~~Method~~ The method according to claim 6,

~~characterised in that~~ wherein the Fourier transform is computed by using a Goertzel

algorithm~~, this having been or being~~ which is adjusted to the specified frequency of the

tone to be detected ~~in each case~~.

9.   (Currently Amended) ~~Method~~ The method according to claim 1,

~~characterised in that the~~ wherein said detecting step comprises detecting a phase relation

~~is detected~~ at a first moment and a second moment which ~~is delayed by a defined~~

occurring a predetermined time ~~difference (corresponding to a first and a subsequent~~

~~block)~~ after the first moment to determine a phase change from complex output values of

the ~~transformation~~ transforming step, ~~in that~~ comparing ~~the~~ a phase difference ~~of~~ between

the phase relations at the ~~two~~ first and second moments ~~is compared~~ with ~~the~~ a phase

difference ~~of~~ between the phase relations of the second moment and a third moment

~~which is delayed by~~ occurring the ~~same~~ predetermined time ~~difference in comparison~~

~~with~~ after the second moment ~~with respect to the second moment~~, and ~~in that in the event~~

~~of sufficiently exact coincidence of~~ determining whether a phase change exists based on a

result of the comparing of the two phase differences ~~the absence of a phase change in the~~

~~signal is decided on and in the event of a large deviation in the two phase differences the~~

~~presence of a phase change in the signal is decided on~~.

10.   (Currently Amended) ~~Method~~ The method according to claim 9,

~~characterised in that the complex number describing the phase is determined with only~~

~~twelve real multiplications~~ wherein the transforming is performed using complex

multiplication.

11.   (Currently Amended) ~~Method~~ The method according to claim 9,

characterised by its implementation by evaluation of the formula

$$\tilde{y}_v(N\text{-}1)\ \tilde{y}\,{}^*_{v+2}(N\text{-}1)\ \tilde{y}\,{}^*_{v+2}(N\text{-}1)\ \tilde{y}_{v+4}(N\text{-}1) = z$$

where z is a decision variable, and $\tilde{y}\,^*$ denotes a conjugated complex variable.

12.   (Currently Amended) ~~Method~~ The method according to claim 1,

~~characterised in that~~ the block length ~~(= number of sample values of a block) and/or the~~ a

number of blocks used for detection is adjusted as a function of the signal/noise ratio

(SNR) of the signal ~~in such a way~~ so that a substantially constant error rate of detection is

achieved over a range of signal/noise ratios.

13.   (Currently Amended) ~~Method~~ The method according to claim 1,

~~characterised in that~~ wherein a plurality of channels are processed in a ~~type of~~ time-

division multiplex with offset blocks.

14.   (Currently Amended) ~~Device~~ A device for detecting an information

signal, a tone ~~and/or~~ a phase change of ~~a~~ the tone in ~~one or more signals which contain(s)~~

~~inter alia this~~ at least one signal which contains the information signal or ~~this~~ the tone,

~~characterised in that the device has means for carrying out the method according to claim~~

~~1~~ the device comprising:

a analog-to-digital converter for converting the signal into a plurality of sample

values; and

a detector for dividing sample values of the signal into a plurality of blocks

corresponding to time segments of the signal, wherein the blocks have an adjustable

length which is set to ensure accurate detection of the information signal, the tone or the

phase change, selecting a predetermined number of the blocks to be processed for

detection, transforming the sample values in selected blocks from the time domain to the

frequency domain to produce at least one output value, and detecting the information

signal, the tone or the phase change based on said at least one output value, wherein the

blocks which are not selected are not processed.

15.   (Currently Amended) ~~Device~~ The device according to claim 14,

~~characterised by a central processor (34),~~ further comprising a memory device ~~(32)~~ and a

control device ~~(30)~~ which during operation supplies data contained in the memory device

~~(32)~~ concerning tones to be detected ~~(frequencies)~~ to the ~~central processor (34)~~ detector

which ~~emits~~ generates an output signal ~~characteristic of the presence of a frequency~~

indicating whether the tone or the phase change has been detected ~~to be detected and/or a~~

~~phase change~~.